

## **PACKAGING FOR TOY AND LITHOPHANE COMBINATIONS**

### **Cross-Reference to Related Application**

[0001] This application claims priority under 35 U.S.C. § 119 and applicable foreign and international law of U.S. Provisional Patent Application Serial No. 60/447,054 filed February 12, 2003 which is hereby incorporated by reference in its entirety.

### **Field of the Invention**

[0002] This invention relates generally to toy packaging, and relates particularly to packaging for combinations of lithophanes and figures.

### **Background of the Invention**

[0003] Lithophanes, or lithophanes, are generally flat plates of a translucent material that have been carved or molded with surface features of varying depth. The lithophane surface is generally shaped so that when the lithophane is viewed against an illumination source, or back-lighting, the thicker portions of the lithophane appear darker, while the thinner portions appear lighter. In this way, a lithophane may present a highly detailed picture with a remarkable three-dimensional quality.

[0004] Lithophanes have historically been prepared from porcelain, either by hand-carving or through the use of molds. Modern lithophanes may be prepared by forming the desired features into a translucent polymer panel. For example, an image may be digitally scanned and the resulting light and dark values of the scanned image converted by an algorithm to corresponding depth values for the translucent material. The resulting three-dimensional model may be used to machine the desired lithophane using, for example, 3-dimensional computer-operating milling or laser stereolithography. Mass production of

the desired lithophane may be facilitated by mirroring a three-dimensional model to produce a master mold from which multiple lithophanes may subsequently be cast.

[0005] Examples of lithophanes and methods of producing lithophanes are found in U.S. Patent Nos. 1,158,863, 5,782,698, 5,925,426, 6,071,655, 6,287,492, and 6,306,470 (the disclosures of which are incorporated by reference), and in Australian patent publication 4518699, European patent nos. 0918268 and 1119448, United Kingdom patent nos. 5626, 2345458, and international patent application publication WO 00/20185. Commercial embodiments of computer-machined lithophanes and computer-machined molds for lithophanes were presented by ArtCam at the Jewelry Expo in Providence, RI, in May, 1994 and sold under the name Lithacrylics at least as early as 1997, as shown in U.S. Trademark Registration No. 2,540,011. Photographs of such molds were available for inspection at least as early as 1996, as shown in U.S. Copyright Registration Nos. VAu-359-977, VAu-378-529, VAu-378-530, VAu-378-531, VAu-378-532, VAu-378-533, VAu-378-534, VAu-378-535, VAu-378-536, VAu-378-537, VAu-378-538, VAu-378-539, and VAu-441-575.

[0006] Although lithophanes had been produced in Europe since the early nineteenth century, historical examples of lithophanes are comparatively rare. A lithophane capable of yielding a superbly detailed image when illuminated properly may simply appear to be an oddly shaped piece of plain porcelain when viewed under normal light. Due to the plain or even odd appearance of most lithophanes when viewed under normal lighting (i.e. front-lighting) many were discarded before their true nature could be appreciated.

[0007] The same difficulties exists when marketing modern lithophanes. The odd appearance of lithophanes may make them difficult to market without an explanation of their properties. Unfortunately, product packaging must typically create interest in a potential purchaser quickly in order to efficiently sell a product. What is needed, therefore, is product packaging that permits a potential buyer to view the lithophane image, without either compromising the ability of the packaging to protect the package contents, or interfering with the attractive features of the packaging.

#### Summary

[0008] This disclosure provides packaged toy sets, including a toy and a lithophane panel depicting an image. Typically the packaged toy set is configured so that at least a portion of the image depicted by the lithophane panel is viewable when backlit.

#### Brief Description of the Drawings

[0009] Fig. 1 is an isometric view of a packaged toy according to an embodiment of the invention.

[0010] Fig. 2 is an exploded isometric view of the packaged toy of Fig. 1.

[0011] Fig. 3 is an isometric view of a packaged toy according to an alternative embodiment of the invention.

[0012] Fig. 4 is a rear view of the packaged toy of Fig. 3.

[0013] Fig. 5 shows a flowchart depicting a method of packaging a lithophane panel and a toy, according to an embodiment of the invention.

### Detailed Description

[0014] A packaged toy 10 according to an embodiment of the present invention is shown in Fig. 1. The packaged toy includes a toy 12, and a lithophane panel 14. Lithophane panel 14 generally depicts a scene or image, and the packaging, toy, and lithophane panel are typically configured so that both the toy and the lithophane panel are visible, and the depicted scene or image may be viewed when backlit.

[0015] Lithophane panel 14 may be packaged for sale with toy 12. The packaging for the lithophane panel and toy may include a backing sheet 16. Backing sheet 16 is typically thin and planar, and may include paper, foil, mylar, or any other suitable sheet material. Typically, the backing sheet includes a fibrous material that is readily cut to shape, such as cardboard or other heavy paper stock. The backing sheet may be printed with decorative graphics that may enhance the appeal of the packaged toys.

[0016] The backing sheet typically includes an aperture 18, as shown in Fig. 2 and the lithophane panel and the backing sheet are arranged to that at least a portion of the scene or image depicted by the lithophane panel is aligned with the aperture, and may be viewed. That is, by holding the packaging between the viewer and an illumination source, the lithophane panel is back-lit through the aperture in the backing sheet, and a lithophane image 19 is therefore visible.

[0017] The toy and lithophane may be at least substantially enclosed by a substantially transparent cover blister 20 that is associated with the backing sheet 16. By associated is meant that the cover blister is partially or fully attached or connected to the

backing sheet, for example using adhesive, fasteners such as staples, heat treatment, or any other method of association.

[0018] The cover blister is typically a substantially transparent “bubble,” generally formed from plastic or other polymer by hot or cold pressing the sheet into a mold. The blister may be shaped to enclose the lithophane and toy, and may include a flat circumferential lip configured to be partially or fully sealed to backing sheet 16.

[0019] The lithophane panel, the backing sheet, and the blister cover are generally arranged so that at least a portion of the toy and lithophane are visible, and that at least a portion of the lithophane image may be viewed through the blister cover while the lithophane panel is back-lit through the aperture in the backing sheet.

[0020] The packaged toy of Fig. 1 may additionally include a cover sheet 22. The cover sheet is typically thin and planar, such as cardboard or heavy paper stock. The cover sheet typically includes at least one aperture 24, configured so that when the lithophane panel is disposed between the cover sheet and backing sheet, the apertures may be at least partially aligned to permit the lithophane image to be viewed when illuminated from the rear of the backing sheet. Cover sheet 22 may be printed with decorative graphics, and may be decorated so as to match selected graphic elements printed on backing sheet 16, or relating to toy 12. For example, a graphic element on the backing sheet that might otherwise be obscured by the lithophane panel may be continued on the cover sheet, resulting in a pleasing and harmonious appearance for the packaging.

[0021] The cover sheet, backing sheet, or both, may include an indication 26 that the lithophane panel is viewable when backlit. The indication may include one or more of

written instructions, pictorial elements, and/or alterations in the outline of aperture 24, among other indicia. Generally, the indicator should urge the potential purchaser to hold the package between the viewer's eye and an illumination source, so that the portion of the lithophane panel disposed between apertures 20 and 24 is illuminated from behind. For example, as shown in Figs. 1 and 2, indication 26 includes a pictorial element 28 and an arrowlike intrusion 30 into the outline of the otherwise circular aperture 24.

[0022] Toy packaging 10 may also include a support blister 31, as shown in Fig. 2. Support blister 31 is omitted from Fig. 1 for clarity. The support blister is also typically substantially transparent, and is generally configured to support at least one of toy 12 and lithophane panel 14, or both. Support blister 31 may support the toy by providing a recess 32 or aperture that is formed in the blister, that is complementary to a portion of the toy and permits the toy to nest in the recess or aperture. In one example, the support blister mates with and/or partially encloses a portion of the toy. Additionally, or in the alternative, the support blister may support the toy by providing a surface to which the toy may be attached, for example by an adhesive, or a fastener such as a flexible wire fastener, among others. Toy 12 may be disposed between the support blister and cover blister 16.

[0023] Alternatively, or in addition, the support blister may support the lithophane panel. The lithophane panel may also be supported by, for example, one or more lips or edges formed in the support blister. The support blister may also support the lithophane panel, for example by the inclusions of one or more indentations configured to secure and retain the lithophane panel. The lithophane panel 14 may be disposed between backing

sheet 16 and support blister 31, or the support blister may be disposed between the backing sheet and the lithophane panel. The support blister may aid in retaining the lithophane panel in an appropriate position so that the lithophane image 33 may be viewed via light passing through aperture 18 in the backing sheet.

[0024] The scene or image 19 depicted in the lithophane panel may be related or unrelated to the toy associated with the lithophane panel. However, the depicted image is typically related to the associated toy. For example, toy 12 may depict a figure, such as a particular character, and image 19 depicted by the lithophane panel may include the same character depicted by the figure. Typically, the lithophane panel includes an image at least related to the figure character, and may include a representation of the same character depicted by the figure. In a particular example, where the toy depicts a popular cartoon character the lithophane panel may depict an image of that character in a scene from the cartoon, or depict the character in an action situation.

[0025] The packaged toy of this disclosure may alternatively include a plurality of toys and lithophane panels, for example as shown by packaged toy 34 of Fig. 3. As described above, each toy 36, 37, and 38 may depict a character figure, and each lithophane panel 40, 41, 42 may depict an image related to those characters. Packaged toy 34 of Fig. 3 includes a blister cover 44 and a backing sheet 46 having an aperture 48, similar to the packaged toy of Figs. 1 and 2. However, packaged toy 34 includes three figures 36, 37, and 38 and three lithophane panes 40, 41, and 42, where the lithophane panes are disposed so that the lithophane image may be viewed by placing the packaging between the viewer and an illumination source.

[0026] As described for packaging 10, packaging 34 may include a cover sheet 48 for lithophane panel(s) 40, 41, and 42. As discussed above, cover sheet 48 may further include an indicator that provides instruction for viewing the lithophane panel(s).

[0027] Packaging 34 may also further include a substantially transparent support blister, configured to support the enclosed figures within the cover blister. The support blister may be configured to support or retain one or more of the enclosed lithophane panes, typically through complementary shaped features. Alternatively, or in addition, packaging 34 may include a substantially transparent lithophane support blister that is configured to cradle or otherwise support the lithophane(s) in an appropriate position for viewing the lithophane image. Such a lithophane support blister may be disposed between the backing sheet and the lithophane panel(s). Alternatively, the lithophane support blister may be disposed so that the lithophane panel lies between the backing sheet and the lithophane support blister. Where the packaging includes both a toy support blister and a lithophane support blister, the lithophane panels may be supported cooperatively by both the toy support blister and the lithophane support blister.

[0028] The packaging described herein lends itself to the advantageous presentation of toy and lithophane combinations, as it permits both the toy and the accompanying lithophane panel to be displayed to a potential purchaser, particularly in that the image depicted by the lithophane may be viewed without removing the lithophane from the package. A method of packaging a lithophane panel and a toy is set out in flowchart 50 of Fig. 5, and includes supporting the toy in association with a backing sheet, at 52, supporting the lithophane panel in association with the backing sheet, at 54, and attaching



a substantially transparent cover blister to the backing sheet, at 56. As a result of the method, the supported lithophane panel is aligned with an aperture in the backing sheet so that the lithophane image may be viewed when backlit through the aperture . In a particular example, the lithophane panel is supported by a lithophane support blister that is disposed between the lithophane panel and the backing sheet.

[0029] It should be understood that the choice of a single figure and three figures as shown in this disclosure is a matter of choice, and variations may be envisioned in the number and placement of figures and/or lithophane panels. Similarly, the packaging described herein may not be limited to a particular type of toy, but may be suitable for packaging a variety of types of toy, including vehicles, animals, insects, dragons, monsters, etc. without departing from the scope of the invention.

[0030] Although the present invention has been shown and described with reference to the foregoing operational principles and preferred embodiments, it will be apparent to those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention. The present invention is intended to embrace all such alternatives, modifications and variances that fall within the scope of the following claims.